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A Comparative study of Dexamethasone and Dexmedetomidine as Adjuvants to Ropivacaine in Ultrasound-Guided Saphenous Nerve Block for Postoperative Analgesia: A RCT

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ABSTRACT

Background: Ultrasound-guided saphenous nerve block is an effective modality for postoperative analgesia in knee surgeries, offering sensory blockade while preserving motor function. The addition of adjuvants such as dexamethasone and dexmedetomidine may enhance analgesic efficacy.

Aim: To compare dexamethasone and dexmedetomidine as adjuvants to ropivacaine in ultrasound-guided saphenous nerve block for postoperative analgesia in anterior cruciate ligament (ACL) reconstruction.

Methods: This randomized controlled trial included 76 patients (ASA I–II) undergoing ACL reconstruction under subarachnoid block. Patients were randomized into two groups (n=38 each):

- Group A: Ropivacaine (0.25%, 10 ml) + Dexamethasone (8 mg)
- Group B: Ropivacaine (0.25%, 10 ml) + Dexmedetomidine (1 µg/kg)

Pain was assessed using the Numerical Rating Scale (NRS) at multiple postoperative intervals. Hemodynamic parameters, rescue analgesia, and adverse effects were recorded. Statistical analysis was performed using STATA with significance set at $p<0.05$.

Results: Demographic and baseline characteristics were comparable between groups. Early postoperative pain scores (1–6 hours) showed no significant difference. However, pain scores at 12 and 24 hours were significantly lower in the dexmedetomidine group ($p<0.05$). Time to first and second rescue analgesia and total analgesic consumption were comparable. Hemodynamic parameters and sedation scores were similar, although mild hypotension and bradycardia were observed in the dexmedetomidine group.

Conclusion: Both dexamethasone and dexmedetomidine are effective adjuvants to ropivacaine in saphenous nerve block. Dexmedetomidine provides better late postoperative analgesia, whereas dexamethasone offers comparable efficacy with fewer side effects. Dexamethasone may be preferred due to its favorable safety profile.

KEYWORDS: Ropivacaine, Dexamethasone, Dexmedetomidine, Saphenous nerve block, ACL reconstruction, Postoperative analgesia

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INTRODUCTION

Effective postoperative pain management is crucial for early mobilization and recovery following ACL reconstruction. Saphenous nerve block, particularly under ultrasound guidance, provides targeted sensory analgesia while preserving quadriceps strength. The use of adjuvants with local anesthetics improves block quality and duration.

Dexmedetomidine, an α2-adrenergic agonist, enhances analgesia but may cause hemodynamic instability. Dexamethasone, a corticosteroid, prolongs analgesia through anti-inflammatory mechanisms with minimal adverse effects. This study compares these two agents as adjuvants to ropivacaine.

MATERIALS AND METHODS

- Design: Prospective randomized controlled trial
- Setting: Tertiary care center (November 2022 – May 2025)

- Sample Size: 76 patients (38 per group)
- Inclusion: ASA I–II, age 15–65 years, BMI ≤30 kg/m²
- Exclusion: Drug allergy, infection at site, opioid dependence

Intervention

Ultrasound-guided saphenous nerve block was administered postoperatively:

- Group A: Ropivacaine + Dexamethasone
- Group B: Ropivacaine + Dexmedetomidine

Outcome Measures

- Primary: NRS pain score
- Secondary: Time to rescue analgesia, hemodynamic parameters, side effects, sedation score

Statistical Analysis

ANOVA, Chi-square test, and Bonferroni correction were applied. $p<0.05$ considered significant.

INTERVENTION

At the end of operation, assigned group of participants was identified using a sealed envelope.
-Study group received 10 ml of 0.25% Ropivacaine and 8 mg of Dexamethasone.
-Control group received 10 ml of 0.25% Ropivacaine and 1mcg/kg Dexmedetomidine.

Ultrasound guided Saphenous Nerve Block was performed using a 6-13 MHz linear transducer and a 22 G- bevel 30 degree, 80 mm block needle. The knee on operative side was slightly flexed and leg externally rotated. Transducer was placed in short axis view on anteromedial side of mid-thigh till Sartorius muscle, femoral artery and hyperechoic saphenous nerve near femoral artery was visualized. After proper needle positioning, it was inserted in plane in a lateral position to medial direction. In event of hypotension, Inj. Mephentermine 6 mg intravenous was used and in case of Bradycardia, Inj. Atropine 0.6mg intravenous was used.

Observation and results-

A total of 76 patients that satisfied inclusion and exclusion criteria were included in the study (38 patients were randomized to Group A (Study group - Patients received 10 ml of 0.5% Ropivacaine and 8 mg of Dexamethasone) and the remaining 38 to Group B (Control group - Patients received 10 ml of 0.5% Ropivacaine and 1mcg/kg Dexmedetomidine).

The mean ± SD of age of cases in Group A and Group B was 28.71 ± 8.06 years and 32.34 ±10.42 years respectively. The minimum – maximum age range in Group A and Group B was 15 – 50 years and 16 – 60 years respectively. Group A, 30 cases (78.9%) were male and 8 cases (21.1%) were female. Of 38 cases in Group B, 25 cases (65.8%) were male and 13 cases (34.2%) were female. Group A, 31 cases (81.6%) had grade I ASA and 7 cases (18.4%) had grade II ASA. Of 38 cases in Group B, 31 cases (81.6%) had grade I ASA and 7 cases (18.4%) had grade II ASA. The mean ± SD of BMI of cases in Group A and Group B was 21.56 ± 2.21 kg/m2 and 21.66 ± 2.15 kg/m2 respectively. The minimum – maximum BMI range in Group A and Group B was 18.4 – 27.5 kg/m2 and 18.4 – 27.5 kg/m2 respectively.

Mean heat rate, mean systolic blood pressure, diastolic blood pressure and mean arterial pressure at 1 Hour, 3 Hours, 6 Hours, 12 Hours and 24 Hours among the cases studied did not differ significantly between two study groups.

Distribution of mean Oxygen saturation (SpO2) and mean respiratory rate at 1 Hour, 3 Hours, 6 Hours, 12 Hours and 24 Hours among the cases studied did not differ significantly between two study groups.

Table-1 Inter-group comparison of mean pain score (NRS).

Pain score (NRS)	Group A (n=38)		Group B (n=38)		P-value
	Mean	SD	Mean	SD	
1 Hour	0.00	0.00	0.00	0.00	0.999^{NS}
3 Hours	0.00	0.00	0.00	0.00	0.999^{NS}
6 Hours	1.00	0.87	1.42	1.31	0.103^{NS}
12 Hours	3.37	0.54	3.00	0.69	0.012^{*}
24 Hours	3.26	0.45	2.74	0.50	0.001^{***}
Values are mean and SD, P-value by independent sample t test. P-value<0.05 is consideredto be statistically significant. *P-value<0.05, ***P-value<0.001, NS – Statistically non-significant.					

Values are mean and SD, P-value by independent sample t test. P-value<0.05 is considered to be statistically significant. *P-value<0.05, ***P-value<0.001, NS – Statistically non-significant.

Distribution of mean pain score at 1 Hour, 3 Hours and 6 Hours among the cases studied did not differ significantly between two study groups (P value >0.05 for all). Distribution of mean pain score at 12 Hours and 24 Hours among the cases studied is significantly higher in Group A compared to Group B (P- value<0.05 for all).

The mean ± SD of time to first rescue analgesia in Group A and Group B was 8.95 ± 0.80 Hours and 9.01 ± 0.89 Hours respectively. The minimum – maximum time to first rescue analgesia range in Group A and Group B was 7.5 – 10.5 Hours and 7.5 – 11.0 Hours respectively. Distribution of mean time to first rescue analgesia among the cases studied did not differ significantly between two study groups (P-value>0.05).

The mean ± SD of time to second rescue analgesia in Group A and Group B was 18.47 ± 1.13 Hours and 18.50 ± 0.95 Hours respectively. The minimum – maximum time to second rescue analgesia range in Group A and Group B was 16.0 – 22.0 Hours and 16.0 – 20.0 Hours respectively. Distribution of mean time to second rescue analgesia among the cases studied did not differ significantly between two study groups (P-value>0.05).

Group A, all cases 50 mg + 1000 mg required rescue analgesia in 24 Hours. Of 38 cases in Group B, all cases 50 mg + 1000 mg required rescue analgesia in 24 Hours. Distribution of total rescue analgesia required in 24 Hours among the cases studied did not differ significantly between two study groups (P-value>0.05).

Table no- 2 Inter-group comparison of incidence of side effects among cases studied.

Side effects	**Group A (n=38)**		**Group B (n=38)**		**P-value**
	N	**%**	**N**	**%**	
Nausea	0	0.0	4	10.5	0.115^{NS}
Vomiting	0	0.0	0	0.0	0.999^{NS}
n- Number of cases (% of cases), P-value calculated by Chi-Square test. P-value<0.05 is considered to be statistically significant. NS – Statistically non-significant.					

considered to be statistically significant. NS – Statistically non-significant.

Group A, none had nausea and vomiting, in Group B, 4 cases (10.5%) had nausea. Group B, none had vomiting. Distribution of incidence of vomiting among cases studied did not differ significantly between two study groups (P-value>0.05).

Group A, none had hypotension and bradycardia. Of 38 cases in Group B, 4 (10.5%) had hypotension and bradycardia. Distribution of incidence of hypotension and bradycardia among cases studied did not differ significantly between two study groups. (P-value>0.05).

Table- 3 Ramsay sedation Score

Ramsay sedation Score	**Group A (n=38)**		**Group B (n=38)**		**P-value**
	N	**%**	**N**	**%**	
Score 2	38	100.0	35	92.1	0.240^{NS}
Score 3	0	0.0	3	7.9	
Total	**38**	**100.0**	**38**	**100.0**	
N- Number of cases (% of cases), P-value calculated by Chi-Square test. P-value<0.05 is considered to be statistically significant. NS – Statistically non-significant.					

Of 38 cases in Group A, all had score 2. Of 38 cases in Group B, 35 cases (92.1%) had score 2 and 3 cases (7.9%) had score 3. Distribution of Ramsay sedation score among the cases studied did not differ significantly between two study groups (P-value>0.05).

DISCUSSION

Regional anaesthesia involves desensitizing a specific area of the body to block pain during surgical procedures. Peripheral nerve blocks, a type of regional anaesthesia, target specific nerves to provide pain relief, often used for surgeries on extremities. These techniques minimize the need for general anaesthesia and help improving postoperative pain relief, early recovery, less

postoperative nausea and vomiting and no or minimal systemic side effects of anaesthesia drugs and analgesics. (40)

Ultrasound-guided peripheral nerve blocks use real-time imaging to visualize nerves and surrounding structures, allowing for precise needle placement and local anaesthetic injection. (41) This technique enhances safety and efficacy of nerve blocks, reducing complications and improving pain management, offering better outcomes compared to traditional methods.

Saphenous nerve block is crucial for postoperative analgesia in anterior cruciate ligament (ACL) reconstruction surgery. It provides targeted pain relief, reducing need for systemic opioids and their associated side effects. This block improves patient comfort, fascilating early mobilization and rehabilitation. Additionally, it enhances overall patient satisfaction and potentially shortens hospital stay. (42)

Patients aged between 15 to 60 years in both the groups with mean age of 28.71 ± 8.06 years in group A and 32.34 ± 10.42 years in group B. The mean age of cases studied did not differ significantly between two study groups (P-value>0.05).

Of 38 cases in Group A, 30 (78.9%) were male and 8 (21.1%) were female. Of 38 cases in Group B, 25 (65.8%) were male and 13 (34.2%) were female. None of the groups showed significant difference in sex distribution of cases. (P-value>0.05).

The mean ± SD of BMI of cases in Group A and Group B was 21.56 ± 2.21 kg/m2 and 21.66 ± 2.15 kg/m2 respectively which did not differ significantly between two study groups (P-value>0.05). The distribution of cases with respect to ASA grading I/II were 31/7 in group A and 31/7 in group B which also were similar. (P-value>0.05).

Kim et al. (19) in 2014 compared Saphenous nerve block at the level of adductor canal (ACB) with femoral nerve block (FNB) in patients undergoing total knee arthroplasty. While assessing for Quadriceps strength at 6 to 8 h post-anesthesia, ACB patients had significantly higher median dynamometer readings versus FNB patients (median [interquartile range], 6.1 kgf [3.5, 10.9] (ACB) vs. 0 kgf [0.0, 3.9] (FNB); P < 0.0001) while the pain score and opioid consumption in both groups were comparable at all times (P = 0.019 for pain scores P = 0.0115 for opiod consumption) concluding that ACB when compared to FNB exhibited early relative sparing of quadriceps strength. This preservation of muscle strength is crucial for patients undergoing ACL reconstruction as it facilitates early mobilization and rehabilitation.

Ghodki P S et al. (25) when compared Ultrasound guided Adductor canal block (ACB) with Femoral Nerve Block (FNB) also found less quadriceps muscle weakness with ACB than with FNB as seen in Straight leg raising test (P< 0.001). When implementing Timed Up and Go (TUG) test on POD1, while 26 individuals who were in ACB group were able to complete the test and none of them were at risk of fall; only 18 patients in FNB group were able to complete the test, and six of them were at risk of fall. This difference was statistically significant (P < 0.01) concluding better quadriceps muscle preservation with ACB which also was consistent our study.

Local anaesthetics in peripheral nerve blocks are essential for postoperative analgesia, providing targeted pain relief by inhibiting nerve signal transmission. They reduce need for systemic opioids and minimize its side effects. (43)

A Kocum et al.(17) in 2007 compared effectiveness of Ropivacaine 0.25% and Bupivacaine 0.25% for surgical anesthesia and postoperative analgesia during lumbar plexus and sciatic nerve block in high-risk patients. The time from end of surgery to first analgesic requirement was similar between two groups (10.3 +/- 5.2 hours for Ropivacaine, 11.2 +/- 4.6 hours for Bupivacaine) with no statistically significant difference.

As McClellan and D Faulds. (44) found that Ropivacaine when compared to Bupivacaine showed smaller effect on QRS prolongation (+ 2.4 vs 6%, p<0.05), also Ropivacaine had higher threshold for neurotoxicity than Bupivacaine in terms of mean maximum tolerated unbound arterial plasma concentrations of 0.56 and 0.3 mg/L, respectively (p< 0.001) thus proving that Ropivacaine is better than Bupivacaine in terms of safety profile considering cardiotoxicity as well as neurotoxicity. Hence, we had chosen Ropivacaine over Bupivacaine as primary drug for our study.

Kaur A et al. (21) in 2015 studied Comparison of 0.5% Bupivacaine with 0.5% Ropivacaine in Axillary Brachial Plexus Block. Mean onset time for motor block was significantly shorter in Ropivacaine group (14.88±3.35 min) as compared to Bupivacaine group (22.92±3.79 min) (p<0.001). However, duration of block was significantly higher in Group Bupivacaine Group (408.40±50.39 min) as compared to Ropivacaine Group (365.60±34.29 min) (p=0.001) proving that Ropivacaine showed advantage of lesser motor blockade with early regression.

In patients operated for anterior cruciate ligament reconstruction surgery, mobilizing patients as early as possible yielded better results which is why our study only aimed at achieving postoperative analgesia in these patients. Hence, we chose Ropivacaine in the dose of 0.25%, considering its advantages and our requirement of achieving only postoperative analgesia.

Adjuvants are substances added to local anaesthetics in peripheral nerve blocks to enhance or prolong their effects and extend the duration of pain relief provided by local anaesthetics. (45) Dexmedetomidine, an alpha-2 adrenergic agonists, inhibits release of norepinephrine, leading to reduced neuronal excitability and enhanced pain modulation. Thus it improves the quality and duration of nerve block, provides mild sedation comforting patient and helps reducing need for postoperative opioids. (46)

Dexamethasone works by inhibiting the release of inflammatory mediators reducing neuronal excitability, and stabilizing nerve membranes. It thus improves the quality and extend duration of analgesia when added to local anaesthetics. Its anti-inflammatory properties help in decreasing postoperative inflammation, contributing to better pain management. (47)

Agrawal S et al. (28) in 2021 studied efficacy of 0.25 % Ropivacaine with Dexmedetomidine (Group B) versus 0.25 % Ropivacaine (Group A) alone for Transversus Abdominis Plane Block for Post-Operative Analgesia. Time to first rescue analgesia was significantly longer in Group B (11.95 ± 0.88 hrs) compared to Group A (7.57 ± 0.71 hrs) group ($P < 0.0001$). Number of analgesic doses required in 24 hours showed a mean of 1.6 ± 0.57 (Group A)) and 0.78 ± 0.58 (Group B) in this study. VAS score was lower in Group B ($P < 0.05$) which was statistically significant. Also, overall sedation score in group B was 3 as compared to 2 in group A. All the patients with sedation score at 3 were arousable and did not have any respiratory depression.

P. Akshara et al.(29) compared different doses of Dexmedetomidine Combined with Ropivacaine for Ultrasound-Guided Supraclavicular Brachial Plexus Block aiming to determine the optimal dose of Dexmedetomidine that will produce a superior quality block. The study included 2 doses – 1 mcg/kg and 0.5 mcg/kg. Pain score at 8 h (2.40 vs. 1.64, $P = 0.001$), 12 h (2.60 vs. 1.84, $P = 0.001$), 20 h (3.00 vs. 2.36, $P = 0.015$) and 24 h (3.36 vs. 2.56, $P = 0.013$) was significantly higher in 0.5 mcg/kg group. The mean duration of analgesia (652.32 ± 83.25 min in 0.5 mcg/kg vs. 960.00 ± 78.67 min in 1 mcg/kg group, $P = 0.001$) was significantly more in 1 mcg/kg group. Thus, group with 1 mcg/kg Dexmedetomidine showed similar hemodynamic parameters combined with faster onset and prolonged duration of blockade concluding better results with 1 mcg/kg without any significant side effects.

Karthik N et al. (30) also studied comparison of postoperative analgesia with similar two doses (0.5 mcg/kg (A) and 1 mcg/kg (B)) of Dexmedetomidine in Adductor Canal Block. For the first two hours, there was no variance in the pain scores across the groups. From 2nd till 24th hour, Group B patients had lower pain than Group A. The percentage of patients who required rescue analgesic (A: B–23%: 6%) and the total consumption of fentanyl (A: B–330μg:60 mcg) was less in Group B and was statistically significant ($P < 0.001$). This showed that higher concentration of Dexmedetomidine (1 mcg/kg) is a better adjuvant than a lower concentration (0.5 mcg/kg) for postoperative pain relief.

Kumar S et al.(20) in 2014 did a comparative evaluation of Ropivacaine alone (Group R) and Ropivacaine with Dexamethasone (Group D) in supraclavicular brachial plexus block for postoperative analgesia. In Group R, patients required earlier first rescue analgesia at 9 h 17 min than in Group D at 19 h 39 min which was statistically significant. Group R patients received larger amount of first (98.75 mg in R versus 43.75 mg in Group D) and second rescue analgesia (75 mg in Group R versus 33.75 in Group D) compared to Group D patients which also was statistically significant. Patient satisfaction was also found to be better in Group D (85%) compared to Group R (62.5%).

Pehora C et al. (48) in his study also found that duration of sensory block was significantly longer in perineural Dexamethasone group compared with placebo (mean difference (MD) 6.70 hours, 95% confidence interval (CI) 5.54 to 7.85). Postoperative pain intensity at 12 and 24 hours was significantly lower in perineural Dexamethasone group compared with control (MD -2.08, 95% CI -2.63 to -1.53; participants 257; studies 5) and (MD -1.63, 95% CI -2.34 to -0.93), respectively.

Mean heat rate, mean systolic blood pressure, diastolic blood pressure and mean arterial pressure at 1 Hour, 3 Hours, 6 Hours, 12 Hours and 24 Hours among the cases studied did not differ significantly between two study groups.

Distribution of mean Oxygen saturation (SpO2) and mean respiratory rate at 1 Hour, 3 Hours, 6 Hours, 12 Hours and 24 Hours among the cases studied did not differ significantly between two study groups.

Singh N et al. (27) in 2020 studied 60 ASA I/II patients undergoing upper limb surgeries that were equally divided in 3 groups. Group 1 receiving Ropivacaine with Dexmedetomidine. Group 2 receiving Ropivacaine with Dexamethasone. Group 3 received only Ropivacaine. They found the hemodynamic parameters on lower side perioperatively in patients receiving Dexmedetomidine compared to other two groups, but was not statistically significant. The injection of 3 mg of ephedrine intravenously treated a patient in Dexmedetomidine group who experienced hypotension at 50-minutes. No other side effect was observed in any of the patient. These findings were very much consistent with the findings of our study.

Numerical Rating Scale (NRS):

The Numerical Rating Scale (NRS) is a subjective measure used to assess pain intensity. Usually, it means asking patients to indicate their level of pain on a scale of 0 to 10, with 0 denoting no pain at all and 10 denoting the worst kind of pain imaginable. In our study, we found the distribution of mean pain score (NRS) at 1, 3 and 6 hours in Group B (control group) were 0.00 ± 0.00, 0.00 ± 0.00 and 1.42 ± 1.31 and Group A (study group) were 0.00 ± 0.00, 0.00 ± 0.00 and 1.00 ± 0.87. Distribution of mean pain score at 1 hour, 3 hours and 6 hours among the cases studied did not differ significantly between two study groups (P-value>0.05 for all).

First rescue analgesia is described as the time taken from block performance till demand of first analgesia or NRS >4. In our study, the first rescue analgesia was given (NRS>4) was 8.95 ± 0.80 Hrs in group B and 9.01 ± 0.89 Hrs in group A, P-value>0.05, being statistically non-significant. Similarly, the mean time to second rescue analgesia was 18.47 ± 1.13 Hrs in group A and 18.50 ± 0.95 Hrs in group B, P-value>0.05, also statistically non- significant.

In a study by Singh N et al. (27), duration of analgesia was found to be significantly prolonged in Ropivacaine with Dexmedetomidine group (1) and Ropivacaine with Dexamethasone group (2) compared to Ropivacaine alone group (3). But, it was comparable between group 1 and 2 which is similar to our study. The total analgesic (tramadol) consumption was maximum in group 3 (80.0 ± 25.1 mg) and this was significantly more than group 1 (50.0 ± 0.0 mg) and 2 (53.1 ± 12.5 mg). On comparison between group 1 and 2, no significant difference was found, again similar to our study.

Bansal S et al. (15) in 2023 did an evaluative study for efficacy of Ropivacaine with Dexmedetomidine (Group A) and Ropivacaine with Dexamethasone (Group B) in Fascia Iliaca Compartment block for post-operative pain relief in fracture femur surgeries. The mean VAS score at 6 h after surgery was 0.74±0.95 in Group A, in Group B 2.26±0.95, and in Group C was 4.23±1.17, which was statistically significant (P<0.05). 13.03±1.79 h for Group A, 8.31±1.11 h for Group B, and 5.94±0.87 h for Group C were times required for the first rescue analgesia (P<0.001).

Thus, Bansal S et al. found that Dexmedetomidine when added to Ropivacaine prolongs the duration of analgesia and decreases analgesic consumption compared to Dexamethasone with Ropivacaine which was inconsistent with our study.
There are very few studies comparing both the adjuvants together.

The sedation score in our study was assessed using Ramsay sedation score at regular intervals. Of 38 cases in Group A, all had score 2 while of 38 cases in Group B, 35 cases (92.1%) had score 2 and 3 cases (7.9%) had score 3. Thus, the cases studied did not differ significantly between two study groups (P-value>0.05) which was consistent with the study of Singh N et al. (27) in which the mean sedation score was 2 for both the groups containing Dexamethasone as well as Dexmedetomidine.

Incidence of side effects/complications:
In our study, the incidence of side effects like nausea, vomiting, bradycardia and sedation were approximately similar between both the study groups and were not statistically significant. Thus, in our study, use of 8 mg Dexamethasone as an adjuvant to Ropivacaine in peripheral nerve block produces similar duration of analgesia as compared to 1µg/kg Dexmedetomidine with very minimal changes in haemodynamic parameters without significant sedation and adverse effects.

So, though some studies go in favour of using 1mcg/kg Dexmedetomidine, based on results found in our study proving equal efficacy of Dexamethasone as Dexmedetomidine in terms of postoperative analgesia, we also recommend using 8 mg of Dexamethasone as an adjuvant to Ropivacaine in ultrasound guided Saphenous Nerve block for Anterior Cruciate Ligament Reconstruction surgery, with aim of achieving good postoperative analgesia.

CONCLUSION

Ultrasound guided Saphenous Nerve Block proves to be an effective and useful method for providing postoperative analgesia for anterior cruciate ligament reconstruction surgery. Addition of Dexamethasone as an adjuvant to Ropivacaine reduces pain scores, prolongs duration of first rescue analgesia and required postoperative analgesia similar to when Dexmedetomidine is added to Ropivacaine. Hence based on this study, addition of Dexamethasone to Ropivacaine is recommended for postoperative analgesia in ultrasound guided saphenous nerve block for anterior cruciate ligament reconstruction surgery.

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